

CLAIMS

1. Method in order to allowing to establish, during a dough-forming phase of
5 a recipe-adapted dough structure, having rheological properties increasing over
time in a dough mixer driven by an electric motor, in all events one value of a se-
lected and employed correlation function, when the rheological properties of the
dough structure exhibit a preset value, by means of allowing to detect current val-
ues of the supply current connected to the motor over time and in addition allowing
10 to utilize means in order to evolve or calculate an envelope from the values of the
supply current detected in this way, **characterized** in that, to allowing:
- a. to drive or proceed with the dough forming in the dough mixer to a
dough structure, selected by an operator or the like, and regarded as
suitable for a subsequent processing to a finished product having pre-
determined properties;
 - b. to read one or more values, based on a calculation via the selected cor-
relation function, and;
 - c. simultaneously, or in all events substantially simultaneously, to stop the
dough-forming phase and observe the rheological properties of the
dough structure so that these exhibit the preset value.
2. Method according to claim 1, **characterized** in that the dough in the dough
15 mixer becomes the subject of a plant-related processing, for the forming of a se-
lected finished product, that the product manufactured in this way is tested, with
regard to predetermined requirements, and that upon compliance between product
and requirements the values, according to "b", are utilized as reference value.
3. Method according to claim 1, **characterized** in that the dough in the dough
20 mixer should become the subject of a plant-related processing, for the forming of a
finished product, that the product manufactured in this way is tested, with regard to
predetermined requirements, and that upon a deficiency or discrepancy of compli-
ance between product and requirements the values are rectified or corrected, ac-
cording to "b", and a new recipe-adapted dough structure is driven to the values
25 rectified and corrected in this way, the dough in the dough mixer becoming the

subject of a plant-related processing, for the forming of a selected finished product, that the product manufactured in this way is tested, with regard to predetermined requirements, and that upon a compliance between product and requirements, the values rectified and corrected in this way are utilized as reference values.

4. Method in order to allowing to establish, during a dough-forming phase of a dough structure (3) having time-related increasing rheological properties in a dough mixer (2) driven by an electric motor, a point of time (t_3) when the rheological properties of the dough structure exhibit a preset value, by means of allowing to detect current values of the supply current (4a) connected to the motor (4) over time during said dough-forming phase, and in addition allowing to utilize means in order to evolve or calculate an envelope (53,53') from the values of the supply current (4a') detected in this way, **characterized** in that:

- a. to time-related allowing to form a number of values ($K_1(t)$; $K_2(t)$), based on a calculation via a selected correlation function, by means of the evolved or calculated graph of said envelope;
- b. to allowing to stop the dough-forming phase upon the achievement of a preset value (the reference value) of the correlation function (K_1 , K_2), and;
- c. the value of the correlation function, determined in this way, is set in relation to the rheological properties of the dough structure.

5. Method according to claim 4, **characterized** in that said correlation function is selected as an auto-correlation function.

6. Method according to claim 4 or 5, **characterized** in that the number of values, based on selected correlation function, are selected to two.

7. Method according to claim 6, **characterized** in that one value should be representative of a measure of central tendency or value.

8. Method according to claim 4, **characterized** in that said correlation function is selected as a cross-correlation function.

9. Method according to claim 4, **characterized** in that the time-dependent values of the supply current (4a') are evaluated by means of a time-shifted or phase-displaced current-detecting window.

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10. Method according to claim 9, **characterized** in that the time duration within said window is selected from between 5 and 30 sec, such as between 10–15 sec.

10 11. Method according to claim 4 or 9, **characterized** in that the values of the correlation function, within a time-related first window, are selected lower than the corresponding values in a window being subsequent in time.

12. Method according to claim 4, **characterized** in that one or more preset values of the correlation function are selected, inter alia, in dependence of a selected recipe, the construction of the dough mixer, the mixing and weight of selected ingredients and/or selected motor capacity.

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13. Method according to claim 4 or 12, **characterized** in that one or more preset values of the correlation function are selected, inter alia, in dependence of a subsequent plant-related processing, the structure of the plant and the like.

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14. Arrangement in order to allowing to determine, during a dough-forming phase of a dough structure (3) having time-related increasing rheological properties in a dough mixer (2) driven by an electric motor (4), a point of time (t3) when the rheological properties of the dough structure exhibit a preset value, by means of allowing to detect current values (4a') of the supply current connected to the motor (4) over time during said dough-forming phase and in addition allowing to utilize a means (53), which is adapted to allowing to evolve or calculate an envelope from the values of the supply current (4a') detected in this way, **characterized** in that:

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a. a means (54) is adapted to time-related allowing to determine a number of values, based on a selected correlation function, by means of

the evolved or calculated graph of said envelope;

- b. a means (55) is adapted to allowing to stop the dough-forming phase upon the achievement of a preset value (reference value) of the correlation function, and;
- c. the value of the correlation function determined in this way, according to "b", is allowed to become related to the rheological properties of the dough structure.

15. Arrangement according to claim 14, **characterized** in that said correlation function is constituted of an auto-correlation function.

- 5 16. - Arrangement according to claim 14 or 15, **characterized** in that the number of values, based on and obtained from the selected correlation function, are selected to two.

- 10 17. Arrangement according to claim 16, **characterized** in that one of these two values should be representative of a measure of central tendency or value.

18. Arrangement according to claim 14, **characterized** in that said correlation function is selected as a cross-correlation function.

- 15 19. Arrangement according to claim 14, **characterized** in that the time-dependent values of the supply current are evaluated via a means by means of a time-shifted or time displaced current-detecting window.

- 20 20. Arrangement according to claim 19, **characterized** in that the time duration within said window is selected from between 5 and 30 sec, such as between 10–15 sec.

- 25 21. Arrangement according to claim 14 or 19, **characterized** in that the values of the correlation function, within a time-related first window, are adapted to be lower than corresponding values of a window being subsequent in time.

22. Arrangement according to claim 14, **characterized** in that one or more preset values of the correlation function are selected, inter alia, in dependence of a selected recipe, the construction of the dough mixer, the mixing and weight of selected ingredients and/or selected motor capacity.

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23. Arrangement according to claim 14 or 21, **characterized** in that one or more preset values of the correlation function are selected, inter alia, in dependence of a subsequent plant-related processing, the structure of the plant and the like.

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